Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
Southeast Regional Office • 20 Riverside Drive, Lakeville MA 02347 • 508-946-2700

DEVAL L. PATRICK
Governor

RICHARD K. SULLIVAN JR.
Secretary

KENNETH L. KIMMELL
Commissioner

October 23, 2013

Mr. James Sherman
Woodlawn North Purchase Cemetery
825 N. Main Street
Attleboro, MA 02703

RE: ATTLEBORO
Transmittal No.: X252575
Application No.: SE-13-019
Class: SM-25
FMF No.: 54192
AIR QUALITY PLAN APPROVAL

Dear Mr. Sherman:

The Massachusetts Department of Environmental Protection ("MassDEP"), Bureau of Waste Prevention, has reviewed your Non-major Comprehensive Plan Application ("Application") listed above. This Application concerns the proposed construction of two new human crematory units (retorts) at your cremation facility located at 825 N. Main Street in Attleboro, Massachusetts ("Facility"). The Application bears the seal and signature of Steven Babcock, Massachusetts Registered Professional Engineer number 39761.

This Application was submitted in accordance with 310 CMR 7.02 Plan Approval and Emission Limitations as contained in 310 CMR 7.00 "Air Pollution Control," regulations adopted by MassDEP pursuant to the authority granted by Massachusetts General Laws, Chapter 111, Section 142 A-J, Chapter 21C, Section 4 and 6, and Chapter 21E, Section 6. MassDEP's review of your Application has been limited to air pollution control regulation compliance and does not relieve you of the obligation to comply with any other regulatory requirements.

MassDEP has determined that the Application is administratively and technically complete and that the Application is in conformance with the Air Pollution Control regulations and current air pollution control engineering practice, and hereby grants this **Plan Approval** for said Application, as submitted, subject to the conditions listed below.

Please review the entire Plan Approval, as it stipulates the conditions with which the Facility owner/operator ("Permittee") must comply in order for the Facility to be operated in compliance with this Plan Approval.

1. DESCRIPTION OF FACILITY AND APPLICATION

On August 13, 2007, MassDEP issued approval 4P07015 to the Facility to operate three human crematory units (retorts), identified as unit numbers 1, 2, and 3. In this Application, the Permittee has proposed to install and operate two new retorts at the existing facility, identified as Emission Unit Nos. 4 and 5. Emissions were calculated based on the maximum incineration capacity of each retort: 200 pounds per hour. Best Available Control Technology is defined in Table 2.

2. EMISSION UNIT (EU) IDENTIFICATION

Each Emission Unit (EU) identified in Table 1 is subject to and regulated by this Plan Approval:

Table 1

EU#	Description	Design Capacity
EU4*	Crematory Retort: Matthews Cremation Division Model IE43-SPPIII (Super Power Pak III) Primary Combustion Chamber Burner: Eclipse Model TJ0150 Secondary Combustion Chamber Burner: Eclipse Model TJ0150	Primary Combustion Chamber Burner: 1.5 MMBtu/hr Secondary Combustion Chamber Burner: 1.5 MMBtu/hr
EU5*	Crematory Retort: Matthews Cremation Division Model IE43-SPPIII (Super Power Pak III) Primary Combustion Chamber Burner: Eclipse Model TJ0150 Secondary Combustion Chamber Burner: Eclipse Model TJ0150	Primary Combustion Chamber Burner: 1.5 MMBtu/hr Secondary Combustion Chamber Burner: 1.5 MMBtu/hr

Table 1 Key:
EU# = Emission Unit Number
PCD = Pollution Control Device
MMBtu/hr = million British thermal units per hour
* - Proposed unit, approved herein

3. APPLICABLE REQUIREMENTS

A. OPERATIONAL, PRODUCTION and EMISSION LIMITS

The Permittee is subject to, and shall not exceed the Operational, Production, and Emission Limits as contained in Table 2 below:

Table 2

EU#	Operational / Production Limit	Air Contaminant	Emission Limit	
EU4 EU5	Minimum Secondary Chamber Temperature ≥ 1,600 Degrees Fahrenheit	PM	0.06 gr/dscf	
		PM_{10}	0.06 gr/dscf	
		$PM_{2.5}$	0.06 gr/dscf	
		NO_x	200 ppmv	
		CO	50 ppmv	
		Opacity	≤ 5%, except > 5% to ≤ 20% for ≤ 2 consecutive minutes during any one hour	
EU4 EU5	≤ 552 Operational hours per month per EU ≤ 4160 Operational hours per Any Consecutive Twelve Month Time Period per EU ≤ 1.049 $MMft^3$ Natural Gas used per month per EU ≤ 7.904 $MMft^3$ Natural Gas used per Twelve Month Rolling Period per EU	PM	0.08 tpm	0.62 tpy
		PM_{10}	0.08 tpm	0.62 tpy
		$PM_{2.5}$	0.08 tpm	0.62 tpy
		NO_x	0.206 tpm	1.55 tpy
		CO	0.031 tpm	0.24 tpy

Table 2 Key:
EU# = Emission Unit Number
NO_x = Nitrogen Oxides
CO = Carbon Monoxide
PM = Total Particulate Matter
PM_{10} = Particulate Matter less than or equal to 10 microns in diameter
$PM_{2.5}$ = Particulate Matter less than or equal to 2.5 microns in diameter
tpm = tons per calendar month
tpy = tons per consecutive12-month period
gr/dscf – grains per dry standard cubic foot, corrected to 7 percent oxygen.
ppmv – parts per million by volume, corrected to 7 percent oxygen.
Opacity - exclusive of uncombined water vapor

$MMft^3$ = million cubic feet
≤ = less than or equal to
≥ = greater than or equal to
> = greater than
% = percent

B. COMPLIANCE DEMONSTRATION

The Permittee is subject to, and shall comply with, the monitoring, testing, record keeping, and reporting requirements as contained in Tables 3, 4, and 5 below:

Table 3

EU#	Monitoring and Testing Requirements
EU4 EU5	1. Monitor temperatures in the primary and secondary chambers with Continuous Temperature Monitoring Systems (CTMS) during each complete cremation cycle. A complete cremation cycle shall include burn-down and cool-down time as recommended by the manufacturer, or the time required to consume all combustible material, whichever is greater. Each temperature monitor, or thermocouple, shall be equipped with both an audible and a visual alarm set to alert the operator(s) whenever a temperature deviation occurs. The primary chamber burner shall be electronically interlocked with the secondary chamber thermocouple to prevent ignition of the primary chamber burner or to automatically shut off the primary chamber burner during the burn cycle should the secondary chamber thermocouple detect a temperature less than the minimum required temperature as stated in Table 2 of this Approval.

Table 3	
EU#	**Monitoring and Testing Requirements**
EU4 EU5	2. Monitor the opacity of the stack gas from each retort, during each complete cremation cycle, using its own dedicated full scale (0-100%) Continuous Opacity Monitoring Systems (COMS) with associated Data Acquisition System (DAS) which shall include the corresponding date and time. A complete cremation cycle shall include burn-down and cool-down time as recommended by the manufacturer, or the time required to consume all combustible material, whichever is greater. Each COMS shall be installed in an appropriate sampling location in the ductwork or stack to give a representative and accurate opacity measurement when the crematory retort is operating. Each COMS shall have the following design specifications: • The light source shall have a peak and mean spectral response between 500 and 600 nanometers (nm). The response at any wavelength below 400 nm or above 700 nm shall be less than 10 percent of the peak spectral response. • The light source shall be modulated to filter out the effects of ambient light such as sunlight. • The output signal from the COMS shall be in terms of electrical current such as in a 4 to 20 milliamp format. Each COMS and DAS shall be equipped with both an audible and a visual alarm set to alert the operator(s) whenever opacity exceeds either of the following two alarm points: • The first alarm point shall be triggered when the opacity has exceeded five (5) percent opacity for more than any two consecutive one minute periods during any one clock hour time period, without exceeding twenty (20) percent; • The second alarm point shall be triggered when the opacity exceeds twenty (20) percent for any period of time. An electronic interlock shall automatically prevent ignition of the primary chamber or shut off the primary chamber burner during the burn cycle whenever opacity exceeds the limit in Table 2.
	3. The Permittee shall operate the crematory retorts in accordance with the manufacturer's Standard Operating and Maintenance Procedures (SOMP). The Permittee shall check all air pollution control and continuous opacity monitoring equipment daily for proper operation and function before proceeding with the cremation process.
	4. The crematory retorts shall be maintained as necessary and kept in good working condition. The temperature monitoring equipment shall be calibrated at a frequency and maintained in accordance with manufacturer's recommendations to ensure continuous compliance with the temperature limits in Table 2 of this Approval. The COMS shall be calibrated in the field on a quarterly basis by performing clear path calibration that is conducted manually for the zero and for a span point that is between twenty (20) and thirty (30) percent transmission using a certified neutral density filter. Said quarterly calibrations shall be conducted between January 1st through March 31st, April 1st through June 30th, July 1st through September 30th, and October 1st through December 31st of every year.

Table 3	
EU#	**Monitoring and Testing Requirements**
	5. Monitor on a daily, monthly, and consecutive twelve month period basis the number of operational hours for each crematory retort.
	6. The Permittee shall conduct emissions compliance testing on **one** (1) of the new cremation retorts to demonstrate compliance with the PM, PM_{10}, $PM_{2.5}$, NO_x, CO, and opacity emission limitations as contained in Table 2 of this Approval. All compliance testing for particulate shall include the condensable fraction. The emissions compliance testing shall be conducted within sixty (60) days after the installation of the retorts is completed but no later than 180 days after the first retort is installed and operational. Testing shall be conducted in accordance with the requirements and procedures set forth by appropriate EPA Reference Test Methods, 40 CFR Part 60 Subpart A, 40 CFR Part 51, Appendix M, Air Pollution Control Regulations 310 CMR 7.00, Section 7.13 and this Plan Approval. The opacity testing shall be conducted in accordance with the requirements and procedures as contained in 40 CFR 60 Subpart A, Method 9. The dates and times for conducting the emission tests shall be coordinated with MassDEP personnel of this Office for a mutually agreed upon schedule for testing. As an alternative to emissions compliance testing, the Permittee may provide documentation of satisfactory emissions compliance testing that was conducted on an identical cremation retort in the Commonwealth of Massachusetts within five years prior to the date of submittal of a complete Application.
Facility-wide	7. Monitor on a monthly and consecutive twelve month period basis the natural gas consumption.
	8. The Permittee shall monitor all operations to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	9. If and when MassDEP requires it, the Permittee shall conduct emission testing in accordance with USEPA Reference Test Methods and regulation 310 CMR 7.13

Table 3 Key:
EU# = Emission Unit Number
CTMS = Continuous Temperature Monitoring Systems
COMS = Continuous Opacity Monitoring Systems
DAS = Data Acquisition System
nm = nanometers
SOMP = Standard Operating and Maintenance Procedures
USEPA = United States Environmental Protection Agency

Table 4	
EU#	**Record Keeping Requirements**
EU4 EU5	1. Record temperatures continuously in the primary and secondary chambers of each cremation retort during each complete cremation cycle using a computerized data acquisition system and data logger. The data acquisition system shall log at least one data point (for each temperature) every 15 seconds.
	2. Continuously record the opacity of the stack gas from each retort during each complete cremation cycle using a DAS and digital recorder that records opacity on a full scale of 0% - 100%. The digital recorder shall record the opacity readings with corresponding dates and times on a continuous basis. All data shall be stored in electronic format using a hard drive or comparable storage device.
	3. All records must identify the cremation retort and show the date, start and end time of each cremation, and shall contain the name of the operator who performed the cremation.
	4. The Permittee shall maintain on site and accessible at or near the subject equipment, at all times, a copy of this Approval letter and the SOMP for all air-emissions-related equipment at the Facility. The SOMP for each crematory retort shall include start-up or pre-heat, cremation loading, and burn-down cycle procedures as well as descriptions of the temperature monitors, opacity monitors and all interlocks.
	5. The Permittee shall keep on-site records of all preventative or corrective maintenance, calibration checks, adjustments, and evaluations performed on each retort and each retort's temperature and opacity monitors, including dates and detailed descriptions of what was performed.
	6. Record the operational hours each day in each crematory retort. Use this data to calculate the operational hours on a monthly and consecutive twelve month period basis in each crematory retort.
	7. Record on a monthly and consecutive twelve month period basis the natural gas consumption. Each EU's natural gas consumption shall be apportioned based on the ratio of the operational hours of each EU to the total operational hours of all EUs for each time period.
	8. The Permittee shall maintain on-site documentation, including dated operator's certificates, showing that each operator at the Facility has received training in the proper operation and in the manufacturer's SOMP for said retorts. Said documentation shall be kept on site throughout each operator's employment as well as for at least five (5) years after termination of employment.
Facility-wide	9. The Permittee shall maintain adequate records on-site to demonstrate compliance with all operational, production, and emission limits contained in Table 2 above. Records shall also include the actual emissions of air contaminant(s) emitted for each calendar month and for each consecutive twelve month period (current month plus prior eleven months). These records shall be compiled no later than the 15th day following each month. An electronic version of the MassDEP approved record keeping form, in Microsoft Excel format, can be downloaded at http://www.mass.gov/dep/air/approvals/aqforms.htm#report .
	10. The Permittee shall maintain records of monitoring and testing as required by Table 3.

Table 4	
EU#	**Record Keeping Requirements**
	11. The Permittee shall maintain a record of all malfunctions affecting air contaminant emission rates on the approved EUs and monitoring equipment. At a minimum, the records shall include: date and time the malfunction occurred; description of the malfunction; corrective actions taken; the date and time corrective actions were initiated and completed; and the date and time emission rates and monitoring equipment returned to compliant operation.
	12. The Permittee shall maintain records to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	13. The Permittee shall maintain records required by this Plan Approval on-site for a minimum of five (5) years.
	14. The Permittee shall make records required by this Plan Approval available to MassDEP and USEPA personnel upon request.

Table 4 Key:
EU# = Emission Unit Number
SOMP = Standard Operating and Maintenance Procedure
USEPA = United States Environmental Protection Agency
DAS = Data Acquisition System

Table 5	
EU#	**Reporting Requirements**
EU4 EU5	1. The Permittee shall submit to MassDEP any changes to the SOMP within seven (7) days of commencement of the modification(s).
Facility-wide	2. The Permittee shall submit to MassDEP all information required by this Plan Approval over the signature of a "Responsible Official" as defined in 310 CMR 7.00 and shall include the Certification statement as provided in 310 CMR 7.01(2)(c).
	3. The Permittee shall notify the Southeast Regional Office of MassDEP, BWP Compliance & Enforcement (C/E) Chief by telephone (508) 946-2878, email sero.air@state.ma.us or fax (508) 946-2865 or (508) 947-6557 as soon as possible, but no later than one (1) business day after discovery of an exceedance(s) of Table 2 requirements. A written report shall be submitted to C/E Chief at MassDEP within three (3) business days thereafter and shall include: identification of exceedance(s), duration of exceedance(s), reason for the exceedance(s), corrective actions taken, and action plan to prevent future exceedance(s).
	4. The Permittee shall report annually to MassDEP, in accordance with 310 CMR 7.12, all information as required by the Source Registration/Emission Statement Form. The Permittee shall note therein any minor changes (under 310 CMR 7.02(2)(e), 7.03, 7.26, etc.), which did not require Plan Approval.

Table 5	
EU#	**Reporting Requirements**
	5. The Permittee shall provide a copy to MassDEP of any record required to be maintained by this Plan Approval within 30-days from MassDEP's request.
	6. The Permittee shall submit to MassDEP for approval a stack emission pretest protocol, at least 30 days prior to emission testing, for emission testing as defined in Table 3 Monitoring and Testing Requirements.
	7. The Permittee shall submit to MassDEP a final stack emission test results report, within 45 days after emission testing, for emission testing as defined in Table 3 Monitoring and Testing Requirements.

Table 5 Key:
EU# = Emission Unit Number

4. SPECIAL TERMS AND CONDITIONS

The Permittee is subject to, and shall comply with, the following special terms and conditions:

A. The Permittee shall comply with the Special Terms and Conditions as contained in Table 6 below:

Table 6	
EU#	**Special Terms and Conditions**
EU4 EU5	1. The Permittee shall implement an Operator Training Program to train personnel who will be operating any of the crematory retorts in the proper operation and in the manufacturer's SOMP for said retorts. Said training shall be given by a representative from the manufacturer of the crematory retort or another qualified organization. The training shall include the following elements: a) principles of combustion; b) operating monitors and controls; c) operating sequence under normal conditions; d) safety and operating procedures under foreseeable upset conditions (e.g. power or fuel interruption, burner malfunction, visible emissions, high and low temperature incidents, etc.); e) regulatory requirements; f) calibration, adjustment and replacement of thermocouples; g) preventative maintenance practices and procedures and recommended frequency; h) record keeping requirements and procedures; and i) calibration, adjustment and replacement of opacity monitors. Minimum training criteria shall include hands-on control of the retort for at least two (2) operating cycles in order to complete the program and receive an operator's certificate. All training shall be equipment specific. If an existing crematory retort is modified, the operator(s) must be re-trained to operate the modified retort.

Table 6	
EU#	**Special Terms and Conditions**
	2. The Permittee shall have an operator who has completed the Operator Training Program present at all times during cremations. The cremation operator shall take any necessary action, including shutdown of the equipment, to ensure that the Facility operates in compliance with the temperature and opacity limits contained within this Approval
	3. The Permittee shall utilize the crematory retort(s) only for human-remains-related-material and their container. No other material shall be incinerated in the crematory retort(s).
EU4 EU5	4. The thermocouple in each retort's secondary chamber must be located at a position that defines a chamber volume, as measured between the secondary chamber burner and the downstream thermocouple, sufficient to provide a minimum exhaust gas residence or retention time of 1.0 second at 1,600 degrees Fahrenheit.
	5. The thermocouple in each retort's primary and secondary chamber shall be located at the exit end of each combustion zone in order to measure each chamber's representative temperature and not be otherwise impacted by the flame's radiant heat effect.
	6. In the event of a malfunction or breakdown of a retort or the associated monitoring equipment, the Permittee shall not initiate any new cremations in said retort until repairs are completed and normal operation can be restored.
	7. The Permittee shall incinerate only containers, including cremation pouches that contain no chlorinated plastics.
	8. The Permittee shall burn Natural Gas in the retorts as the only fuel.
Facility-wide	9. Any prior Plan Approvals issued under 310 CMR 7.02 shall remain in effect unless specifically changed or superseded by this Plan Approval. The Facility shall not exceed the emission limits and shall comply with approved conditions specified in the prior Plan Approval(s) unless specifically altered by this Plan Approval.

Table 6 Key:
EU# = Emission Unit Number

B. The Permittee shall install and use an exhaust stack, as required in Table 7, on each of the Emission Units that is consistent with good air pollution control engineering practice and that discharges so as to not cause or contribute to a condition of air pollution. Each exhaust stack shall be configured to discharge the gases vertically and shall not be equipped with any part or device that restricts the vertical exhaust flow of the emitted gases, including but not limited to rain protection devices known as "shanty caps" and "egg beaters." The Permittee shall install and utilize exhaust stacks with the following parameters, as contained in Table 7 below, for the Emission Units that are regulated by this Plan Approval:

Table 7				
EU#	**Stack Height Above Ground (feet)**	**Stack Inside Exit Dimensions (inches)**	**Stack Gas Exit Velocity Range (feet per second)**	**Stack Gas Exit Temperature Range (^{o}F)**
EU4	37.5	20	17 - 20	900 - 1200
EU5	37.5	20	17 - 20	900 - 1200

Table 7 Key:
EU# = Emission Unit Number
^{o}F = Degree Fahrenheit

5. GENERAL CONDITIONS

The Permittee is subject to, and shall comply with, the following general conditions:

A. Pursuant to 310 CMR 7.01, 7.02, 7.09 and 7.10, should any nuisance condition(s), including but not limited to smoke, dust, odor or noise, occur as the result of the operation of the Facility, then the Permittee shall immediately take appropriate steps including shutdown, if necessary, to abate said nuisance condition(s).

B. If asbestos remediation/removal will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that all removal/remediation of asbestos shall be done in accordance with 310 CMR 7.15 in its entirety and 310 CMR 4.00.

C. If construction or demolition of an industrial, commercial or institutional building will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that said construction or demolition shall be done in accordance with 310 CMR 7.09(2) and 310 CMR 4.00.

D. Pursuant to 310 CMR 7.01(2)(b) and 7.02(7)(b), the Permittee shall allow MassDEP and / or USEPA personnel access to the Facility, buildings, and all pertinent records for the purpose of making inspections and surveys, collecting samples, obtaining data, and reviewing records.

E. This Plan Approval does not negate the responsibility of the Permittee to comply with any other applicable Federal, State, or local regulations now or in the future.

F. Should there be any differences between the Application and this Plan Approval, the Plan Approval shall govern.

G. Pursuant to 310 CMR 7.02(3)(k), MassDEP may revoke this Plan Approval if the construction work is not commenced within two years from the date of issuance of this Plan Approval, or if the construction work is suspended for one year or more.

H. This Plan Approval may be suspended, modified, or revoked by MassDEP if MassDEP determines that any condition or part of this Plan Approval is being violated.

I. This Plan Approval may be modified or amended when in the opinion of MassDEP such is necessary or appropriate to clarify the Plan Approval conditions or after consideration of a written request by the Permittee to amend the Plan Approval conditions.

J. The Permittee shall conduct emission testing, if requested by MassDEP, in accordance with USEPA Reference Test Methods and regulation 310 CMR 7.13. If required, a pretest protocol report shall be submitted to MassDEP at least 30 days prior to emission testing and the final test results report shall be submitted within 45 days after emission testing.

K. Pursuant to 310 CMR 7.01(3) and 7.02(3)(f), the Permittee shall comply with all conditions contained in this Plan Approval. Should there be any differences between provisions contained in the General Conditions and provisions contained elsewhere in the Plan Approval, the latter shall govern.

6. MASSACHUSETTS ENVIRONMENTAL POLICY ACT

MassDEP has determined that the filing of an Environmental Notification Form (ENF) with the Secretary of Energy & Environmental Affairs, for air quality control purposes, was not required prior to this action by MassDEP. Notwithstanding this determination, the Massachusetts Environmental Policy Act (MEPA) and 301 CMR 11.00, Section 11.04, provide certain "Fail-Safe Provisions," which allow the Secretary to require the filing of an ENF and/or an Environmental Impact Report (EIR) at a later time.

7. APPEAL PROCESS

This Plan Approval is an action of MassDEP. If you are aggrieved by this action, you may request an adjudicatory hearing. A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date of issuance of this Plan Approval.

Under 310 CMR 1.01(6)(b), the request must state clearly and concisely the facts, which are the grounds for the request, and the relief sought. Additionally, the request must state why the Plan Approval is not consistent with applicable laws and regulations.

The hearing request along with a valid check payable to the Commonwealth of Massachusetts in the amount of one hundred dollars ($100.00) must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

This request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority.

MassDEP may waive the adjudicatory hearing-filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

Enclosed is a stamped approved copy of the application submittal.

Should you have any questions concerning this Plan Approval, please contact Dan Kamieniecki by telephone at 508-946-2717, or in writing at the letterhead address.

_____

Thomas Cushing
Permit Chief
Bureau of Waste Prevention

Enclosure

ecc: Attleboro Board of Health / Dept of Health
Attleboro Fire Department
MassDEP/SERO – M. Pinaud
MassDEP/SERO – L. Black
MassDEP/Boston – Y. Tian
AMEC Environment & Infrastructure – P. Kuszpa